This Page Is Inserted by IFW Operations and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents will not correct images, please do not report the images to the Image Problem Mailbox.

PATENT



I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE U.S. POSTAL SERVICE AS FIRST CLASRECEIVED
MAIL IN AN ENVELOPE ADDRESSED TO: COMMISSIONER FOR BOX 1450, ALEXANDRIA, VA 22313-1450, ON PATENTS, P.Q.

JUN 1 0 2004

Technology Center 2100

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants

John O. Moody et al.

Serial No.

09/740,418

Filing Date

December 19, 2000

For

APPARATUS AND METHOD FOR CONTROLLING ALLOCATION

OF RESOURCES AND TASK

EXECUTION

Group Art Unit

2127

Examiner

Anh T. Nguyen

Attorney Docket No.

LM(F)4878

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

- 1. Pursuant to 37 CFR §1.97 and §1.98, and in compliance with CFR \$1.56, the Office's attention is directed to the patents, pending applications, publications and other information listed on the attached PTO-1449. Copies of listed foreign patents and other listed publications are enclosed. No copies of the listed U.S. patents and U.S. patent applications are enclosed. Applicant(s) make no admission that the enclosed documents are prior art to the present invention.
- Regarding each listed document that is not in the English language, an English-language translation accompanies this Statement as indicated on the attached PTO-1449 or a corresponding U.S. Patent is enclosed or a concise explanation of the relevance of the document is set forth on an attached sheet, or a copy of an English-language search report is attached.

06/08/2004 LWONDIMI 00000032 09740418

01 FC:1806

180.00 DP

3.				CFR :	\$1.97(b) this Statement is being filed d):
	(a)				months of the filing date or ntry into the National Stage.
	(b)				e mailing date of a first tion on the merits.
	(c)		§1.9 a fi acti	7(b) l nal a	period set forth in 37 CFR but before the mailing date of either ction or a notice of allowance, or an at otherwise closes prosecution in the on.
			1)		A certification is given below,
			2)	\boxtimes	Enclosed is a check covering the fee (\$180.00) set forth in \$1.17(p) for consideration of this Statement, or
			3)		Charge the fee set forth in 37 CFR \$1.17(p) to Deposit Account No. 20-0090.
	(d)		fina befo requ	l act: re pay ired o	mailing date of either a ion or a notice of allowance, but yment of the issue fee. The certification and fee is below.
			1)		Enclosed is a check covering the fee set forth in 37 CFR \$1.17(p) \$180, or
			2)		Charge the fee set forth in 37 CFR §1.17(p) to Deposit Account No. 20-0090.
4.	Cert	ificat	cion	(if ap	oplicable):
	(a)	signed hereby certifies that of information contained in this was first cited in any tion from a foreign patent office terpart foreign application not 3 months prior to the filing of ement.			

- The undersigned hereby certifies that no item of information contained in this Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the undersigned's knowledge after making reasonable inquiry no item of information contained in the Statement was known to any individual designated in 37 CFR \$1.56(c) more than 3 months prior to the filing of this Statement.
- 5. The Commissioner is hereby authorized to charge any additional fees, fees underpaid, or credit any overpayment with regard to this Statement to Deposit Account No. 20-0090.
- 6. Concise Explanation (if needed):
 - (1) Below is a Concise Statement of Relevance of enclosed non-English language document(s).

DOCUMENTS

- [1] D. P. Bertsekas, "The Auction Algorithm: A Distributed Relaxation Method for the Assignment Problem", Annals of Operations Research 14 (1988) 105-123
- [2] D. Chen, R. Szczerba, and J. Urhan Jr. "A Framed-Quadtree Approach for Determining Euclidean Shortest Paths in a 2-D Environment," IEEE Transactions on Robotics and Automation, vol. 13, no. 5, pp. 668-681, October 1997.
- [3] O. E. Drummond, D. A. Castanon, M. S. Bellovin, "Comparison of 2-D Assignment Algorithms for Sparse, Rectangular, Floating Point, Cost Matrices, *Journal of the SDI Panels on Tracking*, Institute for Defense Analyses, Alexandria, VA, 15 Dec. 1990
- [4] L. Holloway, B. Krogh, and A. Giua, "A Survey of Petri Net Methods for Controlled Discrete Event Systems", Discrete Event Dynamic Systems: Theory and Applications, vol. 7, no. 2, pp. 151-190, April, 1997.
- [5] M. Iordache, John O. Moody, "Synthesis of Deadlock Prevention Supervisors Using Petri Nets", IEEE Transactions on Robotics And Automation, Vol. 18, No. 1, February 2002
- [6] H. W. Kuhn, "The Hungarian Method for the Assignment Problem", Naval Research Logistics Quarterly 2 (1955) 83-97
- [7] J. Moody and P. Antsaklis, "Petri Net Supervisors for DES with Uncontrollable And Unobservable Transitions", IEEE Transactions on Automatic Control, Vol. 45, No. 3, March 2000
- [8] T. Murata, "Petri Nets: Properties, Analysis, and Applications", Proceedings of the IEEE, vol. 77, no. 4, pp. 541-580, 1989

[9] A. B. Poore, N. Rijavec, M. Liggins, V. C. Vannicola, "Data Association Problems Posed as Multidimensional Assignment Problems: Problem Formulation", SPIE Proceedings, Vol 1954 (1993) 552-563

[10] A. B. Poore, N. Rijavec, T. N. Barker, M. Munger, "Data Association Problems Posed as Multidimensional Assignment Problems: Numerical Simulations", SPIE Proceedings, Vol 1954 (1993) 564-573

[11] P. Ramadge and W. Wonham, "The Control of Discrete Event Systems", *Proceedings of the IEEE*, vol. 77, no. 1, pp. 81-97, 1989.

[12] H. Samet. "An Overview of Quadtrees, Octrees, and Related Hierarchical Data Structures," NATO ASI Series, F40:51-68, 1988.

Respectfully submitted,

Robert N. Lipcsik Reg. No. 44,460

TAROLLI, SUNDHEIM, COVERN
& TUMMINO L.L.P.

526 Superior Avenue - Suite 1111

Cleveland, OH 44114-1400 Phone: (216) 621-2234

Fnone: (216) 621-2234 Fax: (216) 621-4072 Customer No.: 26294

FORM PTO-1449 REV. 6-69)			RTMEN ND TRA				АТ	TY DOCKET N	O.: LM(F)487	SERIAL NO. 09/740,418						
IUN 0 7 200STATI	EMEN	IT BY	DISCL 'APPI	_ICAI	TV		AF	APPLICANT(S): John O. Moody et al.								
(Use ser	eral :	sheet	ts if ne	ecess	sary))	FIL	LING DATE: De	ecember 19, 2	000		GROUP: 2127				
		12.1.1					.S. F	PATENT DOCU	MENTS							
EXAMINER INITIAL DOCUMENT NUMBER								DATE	NAME	CLASS	SU	B CLASS	li li			
	-	The state of the s				<u>` </u>	DAIL		TVAINE		RECE		APPROPRIATE			
											JUN 1 0 2004					
FOREIGN PATENT DOCUMENTS Technology Center 2100														100		
	DOC	JMEN	IT NUN	IBER			DATE		COUNTRY	CLASS	SUB CLASS		TRANSLATION			
	-			T									YES	NO		
			UED F			NTC //-			<u> </u>	<u> </u>	L	-4- 1	<u></u> .			
	OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)															
		D. P. Bertsekas, "The Auction Algorithm: A Distributed Relaxation Method for the Assignment Problem", Annals of Operations Research 14 (1988) 105-123														
400	_															
		D. Chen, R. Szczerba, and J. Urhan Jr. "A Framed-Quadtree Approach for Determining Euclidean Shortest Paths in a 2-D Environment," IEEE Transactions on Robotics and Automation, vol. 13, no. 5, pp. 668-681, October 1997.														
	O. E. Drummond, D. A. Castanon, M. S. Bellovin, "Comparison of 2-D Assignment Algorithms for Sparse, Rectangular, Floating Point, Cost Matrices, Journal of the SDI Panels on Tracking, Institute for Defense Analyses, Alexandria, VA, 15 December 1990															
		L. Holloway, B. Krogh, and A. Giua, "A Survey of Petri Net Methods for Controlled Discrete Event Systems", Discrete Event Dynamic Systems: Theory and Applications, vol. 7, no. 2, pp. 151-190, April, 1997.														
		Usi	ng Pe	etri	Net		EEE	ody, "Synthe Transaction								
EXAMINER								DA	TE CONSIDE	RED						
EXAMINER: In Draw line throughout the communication	ugh c	itatio	n if no	ot in d	conf	ormano	ce ai	nd not conside	is in conforn red. Include	nance with copy of tl	MPI his fo	EP §609; orm with n	ext			

FORM PTO-1449 (REV. 6-89)		RTMEN ND TRA				ATTY DOCKET NO.: LM(F)4878						SERIAL NO. 09/740,418				
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary)								APPLICANT(S): John O. Moody et al.								
(Use sev	heet	ts if ne	ecess	sary)		FIL	ING DATE	: De	cember 19, 2	000		GROUP: 2127				
						U	.S. F	PATENT DO	ocui	MENTS						
EXAMINER INITIAL	[DOCI	UMEN ⁻	T NUN	/BEF	8	DATE			NAME	CLASS	SUB CLASS		FILING DATE IF APPROPRIATE		
¥					1	FOR	EIG	N PATENT	DOC	CUMENTS						
	DOCUI	MEN	T NUN	IBER				DATE		COUNTRY	CLASS	SI	JB CLASS	TRANSI	LATION	
							_					ļ <u>.</u>	11.5	YES	NO	
		OT	UED F			ITO (In						<u> </u>	- . \			
										le, Date, Pert	_			, , , , , , , , , , , , , , , , , , ,		
	H. W. Kuhn, "The Hungarian Method for the Assignment Problem", Naval Research Logistics Quarterly 2 (1955) 83-97															
	J. Moody and P. Antsaklis, "Petri Net Supervisors for DES with Uncontrollable And Unobservable Transitions", IEEE Transactions on Automatic Control, Vol. 45, No. 3, March 2000															
	T. Murata, "Petri Nets: Properties, Analysis, and Applications", Proceedings of the IEEE, vol. 77, no. 4, pp. 541-580, 1989															
,		Pro	blems	Po:	sed	as Mu	lti	dimensior	nal .	, V.C.Va Assignment 1954 (199	Probler	ns:	Oata Asso Problem	ciation	า	
•		Pro	blems	Pos	sed	as Mu	ltic	dimensior	nal .	er, M. Mun Assignment 1954 (199	Problem	ns:	Associat Numerica	ion l		
EXAMINER									DA	TE CONSIDE	RED					
EXAMINER: In Draw line throu communication	ıgh cit	atio	n if no	et in c	confe	ormano	e ar	or not citat nd not cons	ion i sider	s in conform ed. Include	ance with copy of th	MP nis fo	EP §609; orm with ne	ext		

FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE (REV. 6-89) PATENT AND TRADEMARK OFFICE								AT	ATTY DOCKET NO.: LM(F)4878						SERIAL NO. 09/740,418			
INFORMATION DISCLOSURE STATEMENT BY APPLICANT									APPLICANT(S): John O. Moody et al.									
(Use several sheets if necessary)								FIL	ING DATE:	De	GROUP: 2127							
							(U.S. F	PATENT DO	CU	MENTS							
EXAMINER INITIAL DOCUMENT NUMBER							DATE NAM			CLASS SI		JB CLASS	FILING DATE IF APPROPRIATE					
_																		
																		
•							FO	REIG	N PATENT	DOC	UMENTS							
DOCUMENT NUMBER									DATE COUNTR		COUNTRY	CLASS	SUB CLASS		TRANSLATION			
												YES			NO			
		0	THEF	₹ D(ocu	JMEI	NTS (I	ncluo	ling Author	, Titl	le, Date, Peri	tinent Pag	es,	Etc.)				
P. Ramadge and W. Wonham, "The Control of Discrete Event Systems", Proceedings of the IEEE, vol. 77, no. 1, pp. 81-97, 1989.																		
	H. Samet. "An Overview of Quadtrees, Octrees, and Related Hierarchical Data Structures," NATO ASI Series, F40:51-68, 1988.														1			
																•		
		-									<u>.</u>				7 10			
				_														
EXAMINER									DATE CONSIDERED									
EXAMINER: Draw line thro communication	ough	citat	tion if	no	t in e	conf	formar	nce a	nd not cons						ext			